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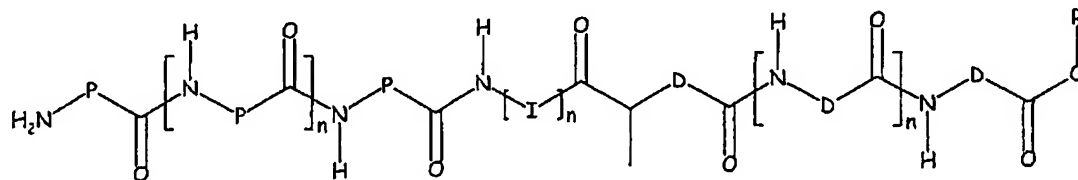
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(57) Abstract: The invention provides π -conjugated oligomers and polymers. The oligomers and polymers may comprise at least two π -conjugated amino acid subunits. The oligomers and polymers may contain one or more π -conjugated amino acid subunits that are optically, electrically or electronically active. The invention also provides optical, electronic and electric devices comprising oligomers and/or polymers having one or more π -conjugated amino acids that are optically, electrically, or electronically active.

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A. CLASSIFICATION OF SUBJECT MATTER
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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	PATENT ABSTRACTS OF JAPAN vol. 0124, no. 53 (P-792), 29 November 1988 (1988-11-29) & JP 63 175838 A (NIPPON TELEGR & TELEPH CORP <NTT>; others: 01), 20 July 1988 (1988-07-20) abstract	1-27
A	DE 39 12 931 A (MERCK PATENT GMBH) 31 October 1990 (1990-10-31) claims 1-6	1-27
A	US 5 466 397 A (GULOTTY JR ROBERT J ET AL) 14 November 1995 (1995-11-14) claims 1-19	1-27
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>HEEGER ET AL.: "Semiconducting and Metallic Polymers: The fourth Generation of Polymeric Materials" ANGEWANDTE CHEMIE - INTERNATIONALE EDITION, vol. 40, 2001, pages 2591-2611, XP002269399 WEINHEIM cited in the application the whole document</p>	1-27

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 63175838	A	20-07-1988	NONE	
DE 3912931	A	31-10-1990	DE 3912931 A1	31-10-1990
			WO 9013055 A1	01-11-1990
			EP 0427815 A1	22-05-1991
			JP 3505598 T	05-12-1991
US 5466397	A	14-11-1995	NONE	